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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HUNNINGS, TRAVIS R	

ART UNIT	PAPER NUMBER
2632	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,593	KEENE, MARK NICHOLAS	
	Examiner	Art Unit	
	Travis R. Hunnings	2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must be in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has been further treated on the merits as depending on claim 14.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The term "approximately" in claim 19 is a relative term which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers (US Patent 3,573,817).

Regarding claim 1, Akers discloses *Monitoring System* that has the following claimed limitations:

The claimed primary sensor adapted to measure a magnetic field and to produce a corresponding measurement signal is met by the magnetic sensor (column 2, lines 25-29);

The claimed secondary, non-magnetic, sensor adapted to detect the movement of objects in the vicinity of the primary sensor is met by the proximity sensor (column 2, lines 34-37);

The claimed signal processor arranged in communication with the primary and secondary sensors is met by the control and encoder circuit (column 2, lines 40-54);

The claimed signal processor is configured to identify temporal variations in the measurement signal due to the movement of a ferromagnetic object within an ambient magnetic field and to correlate the identified temporal variations in the measurement signal with movement of objects detected by the secondary, non-magnetic sensor, and to provide an output indicative of the presence of a ferromagnetic object in the vicinity of the primary sensor only in the presence of a correlation there-between is met by the device providing an output that indicates that one or more of the sensors has detected something (column 2, lines 40-54 and column 7, lines 49-66). It is obvious that the

device could be set up to provide an output when both the proximity sensor and the magnetic sensor are triggered.

Regarding claim 2, the examiner takes official notice that it is well known in the art to use infrared sensors to detect the presence of a person in proximity to the sensor.

Regarding claim 3, the claimed apparatus further comprising at least one of an audible warning device, a visual warning device , and an access control device for preventing access to a prohibited area, operable by the input from the signal processing means is met by the audible, visual and tactual warnings (column 8, lines 50-53).

Regarding claim 14, the use of a metal detector in proximity to a MRI device is a well known application of metal detectors and would therefore be obvious to one of ordinary skill in the art.

Regarding claim 15, the claim is interpreted and rejected as claim 14 stated above.

Regarding claim 16, the claim is interpreted and rejected as claim 1 stated above.

Regarding claim 17, the claim is interpreted and rejected as claim 14 stated above.

6. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers in view of Diaz (US Patent 6,308,644).

Regarding claim 4, Akers discloses all of the claimed limitations except for the claimed access control device comprises at least one of a lock and a barrier. Diaz discloses *Fail-Safe Access Control Chamber Security System* that teaches using a metal detector near an entranceway with a lockable door to prevent people carrying illegal metal into certain areas (column 5, lines 1-35). Modifying Akers to be integrated into a lockable entryway would increase the functionality of the device to prevent people with unwanted metal to enter into certain areas. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Diaz to integrate a lockable door as the access control device.

Regarding claim 20, the claim is interpreted and rejected as claim 4 stated above. The use of a metal detector in proximity to a MRI device is a well known application of metal detectors and would therefore be obvious to one of ordinary skill in the art.

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers in view of Yoo (US Patent 5,726,628).

Regarding claim 5, Akers discloses all of the claimed limitations except for the claimed signal processor comprising a filter arranged to substantially reject spurious variations in the measured magnetic field. Yoo discloses *Metal Detector System* that has a high-pass filter incorporated therein to reject particular frequencies (column 4, 49-51). Adding a high-pass filter to Akers would help to make the device more accurate by only detecting particular frequencies. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Yoo to comprise a filter.

Regarding claim 6, the claim is interpreted and rejected as claim 5 stated above.

Regarding claim 7, the claim is interpreted and rejected as claim 5 stated above. The particular frequency to reject would be obvious to one of ordinary skill in the art in order to provide them with the desired response.

8. Claims 5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers in view of Johnstone et al. (Johnstone; US Patent 6,133,829).

Regarding claim 5, Akers discloses all of the claimed limitations except for the claimed signal processor comprising a filter arranged to substantially reject spurious variations in the measured magnetic field. Johnstone discloses *Walk Through Metal Detector System And Method* that has a low-pass filter incorporated therein to reject particular frequencies (column 2, 28-31). Adding a low-pass filter to Akers would help to make the device more accurate by only detecting particular frequencies. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Johnstone to comprise a filter.

Regarding claim 8, the claim is interpreted and rejected as claim 5 stated above.

Regarding claim 9, the claim is interpreted and rejected as claim 5 stated above. The particular frequency to reject would be obvious to one of ordinary skill in the art in order to provide them with the desired response.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akers in view of Turner et al. (Turner; US Patent Publication 2004/0000999).

Regarding claim 10, Akers discloses all of the claimed limitations except for the claimed signal processor comprising a comparator for comparing the amplitude of the output from the filter with an adjustable threshold level so as to indicate temporal

variations in the measurement signal due to the movement of a ferromagnetic object with an ambient magnetic field. Turner discloses *System And Method For Scanning Carriers For Objects* that has a processor that can adjust the threshold level and compare the received signal to the threshold level in order to determine if an object is detected or not (paragraph 40). Modifying the circuit of Akers to include a processor with the functionality to adjust the threshold level and compare the adjusted threshold to the received signal would allow the device to operate in many kinds of environments that may include background noise that would interfere with the signal. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Turner to include a device to adjust the threshold level and a comparator to compare the threshold level to the received signal.

10. Claims 11-13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers in view of Kopp (US Patent Publication 2003/0171669).

Regarding claim 11, Akers discloses all of the claimed limitations except for the claimed apparatus wherein the primary sensor has a first magnetic sensor comprising one of a fluxgate sensor, a magneto-resistive sensor, a magneto-impedance sensor, a hall-effect sensor, and a galvanic coil sensor. Kopp disclose *MRI Protector* that teaches using an array of hall-effect sensors to detect metal objects (abstract). Replacing the magnetic sensor with an array of hall-effect sensors would give the user more options to

be able to detect metal objects and hall-effect sensors are well known in the art to be used to detect metal or magnetic fields. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Kopp to have an array of hall-effect sensors as the magnetic sensor.

Regarding claim 12, the claim is interpreted and rejected as claim 11 stated above. The array of hall-effect sensors inherently includes more than one hall-effect sensor.

Regarding claim 13, Akers and Kopp disclose all of the claimed limitations. The claimed at least one of the first and second magnetic sensors being separable from the signal processor such that in use the at least one separable sensor may be disposed remotely to the signal processor is met by the sensors of Akers being able to be used as remote sensors (Akers: abstract).

Regarding claim 18, Akers discloses all of the claimed limitations except for the preferred mounting position is at the side of the entrance to the room in which the magnetic resonance imaging scanner is located. Kopp teaches mounting the metal detecting device near the entryway to an MRI device (paragraph 16). Placing the device of Akers by the doorway of an MRI device would allow the user to be alerted that they are carrying dangerous metal objects when they try to enter the room with the MRI

device. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Akers according to the teachings of Kopp to place the device by the entryway of the MRI device.

Regarding claim 19, the claim is interpreted and rejected as claim 18 stated above. The claimed position is merely a choice of the user.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH

DANIEL WU
SUPERVISORY PATENT EXAMINER
8/22/05